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EXAMINER
NGUYEN, VAN H

ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/896,075	BAK ET AL.
	Examiner	Art Unit	
	VAN H. NGUYEN	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 June 2001</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6,10-16 and 18-34</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-6,10-16 and 18-34</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/16/02 10/31/02</u>.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____ .

DETAILED ACTION

1.   This Office Action is in response to the application and the Preliminary amendment filed

on June 28, 2001.

2.   Claims 7-9 and 17 have been cancelled. Claims 29-34 have been added. Claims 1-6, 10-

16, and 18-34 are presented for examination. This application is a continuation of application

No. 08/944,332 filed October 06, 1997, now U.S. patent number 6,317,796 B1.

3.   The cross reference related to the application cited in the specification must be updated

(i.e., update the relevant status, with PTO serial numbers or patent numbers where appropriate,

on page 1). Correction is required.

4.   Examiner requests that Applicant review the application carefully for informalities

including typographical errors.

Information Disclosure Statement

5.   The Applicants' Information Disclosure Statements, filed October 16, 2002 and October

31, 2002, have been received, entered into the record, and considered. See attached form PTO

1449.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions
> and requirements of this title.

7.   Claims 13, 14, and 22-28 are rejected under 35 USC § 101 because the claimed invention
is directed to non-statutory subject matter.

8.   Claims 13, 14, and 22-28 are not limited to statutory embodiments. In view of
Applicant's disclosure, specification pages 10-11, the medium is not limited to statutory
embodiments, instead being defined as including both statutory embodiments (e.g., a floppy disk,
tape etc.) and non-statutory embodiments (e.g., a data signal embodied in a carrier wave). As
such, the claims are not limited to statutory subject matter and are therefore non-statutory (See
"Interim Guidelines for Examination of Patent Applications for Patent Subject Matter
Eligibility", pages 54-57, signed 10/26/05).

9.   To overcome this type of 101 rejection the claims need to be amended to include only the
physical computer media and not a transmission media or other intangible or non-functional
media. For the specification at the bottom, carrier medium and transmission media would be not
statutory but storage media would be statutory.

10.   Claims 24-28 appear to be directed to a data structure stored on a computer readable
medium comprising a description of the kind of data stored (receiver types and nested receiver
types). The claimed data structure, standing alone, does not appear to cause the machine to
'function" differently. Executable code can store and retrieve data to/from a data structure;

however, the data structure, per se, has no functional operation in the absence of executable

code. Therefore, the claims are directed to non-statutory subject matter.

Double Patenting

11.   The nonstatutory double patenting rejection is based on a judicially created doctrine

grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

improper timewise extension of the "right to exclude" granted by a patent and to prevent

possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d

2010 (Fed. CIT. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re van

Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Uogel, 422 F.2d 438, 164 USPQ

619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

12.   A timely filed terminal disclaimer in compliance with 37 C.F.R. ' 1.321(b) would

overcome an actual or provisional rejection on this ground provided the conflicting application

or patent is shown to be commonly owned with this application. See 37 C.F.R. ' 1.78(d).

13.   Effective January 1, 1994, a registered attorney or agent of record may sign a terminal

disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR

3.73(b).

14.   Claims 1-6, 10-16, and 18-34 are rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claims 1-19 of **U.S. Pat. No.**

6,317,796 B1.

15.   Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application and claim 1 of patent'796 are both claiming *"In a computer system, a method of implementing message dispatch for an object-oriented program, comprising: collecting receiver type information at a site of a method that dispatches messages to receiver objects; and saving the receiver type information for a subsequent execution of the program. "* The differences between claim 1 of the instant application and claim 1 of patent'796 would have been obvious to a person of ordinary skill in the art at the time the invention was made, since claim 1 of the instant application represents the invention in broader scope.

16.   As to the remaining claims 2-6, 10-16, and 18-34, they are also rejected under obvious type double patenting as stated in claim 1 above.

Claim Rejections - 35 USC § 102

17.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24-27 and 29-34 are rejected under 35 U.S.C. 102(e) as being anticipated by

Ramalingam et al. (U.S. 5,907,707). The Ramalingam reference was cited by Applicant in the

IDS filed October 16, 2002.

As to claim 24:

Ramalingam teaches the invention as claimed including a computer readable medium *[e.g.,*

application program code and data are stored in persistent memory ... for execution by the CPU

10; see fig. 1A and col.39-63] having a data structure embodied thereon for use by an object-

oriented method *[e.g., the principles of the present invention, Object Model for Java; see col.4,*

lines 15-54], the data structure embodied in the computer readable medium comprising:

at least one receiver type field for storing information indicative of a receiver type *[see*

the types discussion beginning at col.10, line 41]; and

nested receiver type fields for storing information indicative of nested receiver types, the nested

receiver types being of receiver types that were dispatched messages at message dispatch sites in

the method *[seethe discussion of types 2, 3, and 4 regarding derived interfaces to a base class*

and interface references (i.e., nested receiver type); col.10, lines 41-40].

As to claim 25:

Ramalingam teaches the nested receiver types include references to message dispatch sites in the

method *[e.g., col.10, lines 39-50, see four types defined, and associated description that*

follows].

As to claim 26:

Ramalingam teaches the nested receiver types include receiver types that were dispatched messages at message dispatch sites in inlined methods *[e.g., col.10, lines 39-50, see four types defined, and associated description that follows]*.

As to claim 27:

Ramalingam teaches the data structure is saved in a Java class file for the method *[col.8, lines 5-11]*. Ramalingam explicitly teaches the use of Java *[e.g., Object Model for Java; col.4, line 17 and col.7, line 18]*.

As to claim 29:

Ramalingam teaches *[see col.4, lines 15-54 and col.5, lines 52-63]* the invention as claimed including in a computer system *[e.g., the computer system]*, a method of handling messages received by objects in an object-oriented program *[e.g., Object model for Java...a program]*, the messages being dispatched to the objects to invoke methods *[e.g., method invocations]* implemented by the objects; the method comprising:

collecting information relating to objects, the objects being dispatched messages from a call site of the object-oriented program, the call site being a location or an area of the object-oriented program that dispatches messages to the objects *[col.4, lines 15-54 and col.8, lines 20-24]*.

As to claim 30:

Ramalingam teaches determining whether a method should be complied based on at least a

portion of the collected information, the method being a method of one of the objects that

receives a message dispatched from the call site to invoke the method *[see col.6, lines 49-51;*

col.7, lines 42, 46; col.8, line 5 – the step of determining is inherent because Ramalingam

teaches the use of compilation]; and compiling the method when it is determined that the method

should be complied *[see col.8, lines 5-25]*.

As to claim 31:

Ramalingam teaches collecting additional information relating to objects that are dispatched

messages from the call site after the compiling of the method *[see col.8, lines 5-11, see also*

interface reference for an interface declaration ID associated with a given object, col.8, lines 12-

15].

As to claim 32:

Ramalingam teaches storing the collected information in a portion of the object-oriented program

[see the object oriented programming languages discussions, beginning at col.4, lines 15; col.7,

line 25].

As to claim 33:

Ramalingam teaches providing the collected information for a subsequent execution of the

object-oriented program *[e.g., for subsequent use; col.8, lines 8-11 and 20-25]*.

As to claim 34:

Ramalingam teaches the information relating to one or more objects includes at least one

receiver type information, the at least one receiver type information indicating a class for at least

one of the one or more objects that are dispatched messages *[e.g., see the types discussion*

beginning at col. 8, lines 39-50].

Claim Rejections - 35 USC § 103

18.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

> (b)This application currently names joint inventors. In considering patentability of the claims under 35
> U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned
> at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is
> advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that
> was not commonly owned at the time a later invention was made in order for the examiner to consider the
> applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 11-16, 18, 20-23, and 28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Ramalingam et al.** (U.S. 5,907,707).

As to claim 1:

Ramalingam teaches *[see col.4, lines 15-54 and col.5, lines 52-63]* the invention substantially as

claimed including in a computer system *[e.g., the computer system]*, a method of implementing

message dispatch *[e.g., method invocations]* for an object-oriented program *[e.g., Object Model for Java...a program]*, comprising:

collecting receiver type information at a site of a method that dispatches messages to receiver objects *[col.4, lines 48-54 and col.8, lines 20-24]*; and

saving the receiver type information for a subsequent execution of the program *[e.g., for subsequent use; col.8, lines 8-11 and 20-25]*.

The Examiner notes that Applicant broadly defines a *"receiver object"* in the instant specification: *"The object that has been sent a message in an object-oriented environment" [see page 10, lines 9-10]*. The phrase *"sent a message"* is used in the art and within the instant specification to refer to invoking or calling a method in an object, with or without passing actual parameters.

Although Ramalingam does not specifically use the term *"receiver object"*, Ramalingam teaches invoking methods (i.e., sending message) to object(s) in java object-oriented environment *[e.g., col.4, lines 15-54]*. Therefore, it would have been obvious to implement the objects disclosed by Ramalingam as "receiver object" for receiving a call in a Java object-oriented program. Also, The Examiner notes that Ramalingam addresses the same problem that the instant application addresses in the same Java object-oriented environment.

As to claim 2:

Ramalingam teaches the receiver type information includes each different receiver type to which messages were dispatched from the site *[e.g., col.10, lines 39-50, see four types defined]*.

As to claim 3:

Ramalingam teaches the receiver type information includes references to call sites for each

different receiver type to which messages were dispatched from the site *[e.g., col.10, lines 39-50,*

see four types defined, and associated description].

As to claim 4:

Ramalingam teaches the receiver type information includes receiver types encountered at call

sites of inlined methods *[e.g., col.10, lines 39-50, see four types defined]*.

As to claim 5:

Ramalingam teaches the receiver type information is collected while the program is being

interpreted *[e.g., col.6, lines 49-55]*.

As to claim 6:

Ramalingam teaches determining that is would be desirable to compile the method that includes

the site that dispatches messages to receiver objects *[e.g., col.6, lines 49-51; col.7, lines 42-*

51;col.8, line 5; col.11, lines 13-16; and col.12, lines 56-60 – the step of determining is

inherent because Ramalingam teaches the use of compilation].

As to claim 11:

Ramalingam teaches the receiver type information is saved in a class file for the method *[e.g.,*

col.8, lines 5-11].

As to claim 12:

Ramalingam does teach the receiver type information is saved in a class file for the method as

discussed in claim 11 above, but is silent on saving type information in an attributes section of

the class file. However, 'Official Notice" is taken that storing information/data in the attributes

section of a Java class file is well known in the art. Accordingly, the saving of type information

in an attributes section of a Java class file would be an obvious design choice to a programmer of

ordinary skill [M.P.E.P. 2144.03].

As to claim 13:

It is directed to a computer program product for implementing the method of claim 1 above, and

is similarly rejected under the same rationale. Additionally, Ramalingam further teaches a

computer readable medium *[e.g., application program code and data are stored in persistent*

memory... for execution by the CPU 10; see fig. 1A and col.39-63].

As to claim 14:

It is directed to a computer system for performing the method of claim 1 above, and is similarly

rejected under the same rationale. Additionally, Ramalingam further teaches a computer readable

medium *[e.g., application program code and data are stored in persistent memory... for*

execution by the CPU 10; see fig. 1A and col.39-63] and a processor *[e.g., a central processing*

unit 10; col.5, lines 39-63].

As to claim 15:

This claim is rejected for the same reasons detailed above in the rejection of the preceding

independent claims, and also for the following additional reasons:

Ramalingam teaches in a computer system, a method of implementing message dispatch for an

object-oriented program *[see col.4, lines 15-54]*, comprising:

during interpretation, collecting receiver type information at a site of a method that

dispatches messages to receiver objects, wherein the receiver type information includes each

different receiver type and a reference to the site for each different receiver type to which

messages were dispatched from the site *[see col.8, lines 5-11, see also interface reference for an*

interface declaration ID associated with a given object, col.8, lines 12-15];

determining that it would be desirable to compile the method that includes the site that

dispatches messages to receiver objects *[see col.6, lines 49-51; col.7, lines 42, 46; col.8, line 5 –*

the step of determining is inherent because Ramalingam teaches the use of compilation – see the

rejection of claim 6 above];

compiling the method to include the receiver type information at the site that dispatches

messages to receiver objects *[see col.8, lines 5-25]*; and

saving the receiver type information for a subsequent execution of the program *[col.8,*

lines 8-11 and 20-25].

As to claim 16:

See the rejection of claim 4 detailed above.

As to claim 18:

Ramalingam teaches the compiled method continues to collect receiver type information *[col.8,*

lines 8-15].

As to claim 20:

Ramalingam teaches the receiver type information is saved in a Java class file for the method

[col.8, lines 5-11]. Ramalingam explicitly teaches the use of Java *[e.g., Object Model for Java;*

col.4, line 17 and col.7, line 18].

As to claim 21:

Note the discussion of claim 12 above for rejection. Ramalingam explicitly teaches the use of

Java *[e.g., Object Model for Java; col.4, line 17 and col.7, line 18]*.

As to claim 22:

It is directed to a computer program product for implementing the method of claim 15 above,

and is similarly rejected under the same rationale. Additionally, Ramalingam further teaches a

computer readable medium *[e.g., application program code and data are stored in persistent*

memory... for execution by the CPU 10; see fig. 1A and col.39-63].

As to claim 23:

It is directed to a computer system for performing the method of claim 15 above, and is similarly

rejected under the same rationale. Additionally, Ramalingam further teaches a computer readable

medium *[e.g., application program code and data are stored in persistent memory... for*

execution by the CPU 10; see fig. 1A and col.39-63] and a processor *[e.g., a central processing*

unit 10; col.5, lines 39-63].

As to claim 28:

Note the discussion of claim 10 above for rejection.

19.   **Claims 10 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ramalingam et al. (U.S. 5,907,707) in view of **Admitted Prior Art (APA).**

As to claims 10 and 19:

Ramalingam discloses the invention substantially as claimed, as discussed above.

However, Ramalingam does not explicitly disclose the following additional limitations:

APA teaches the receiver type information is collected in a polymorphic inline cache *[see instant*

specification, page 4, see the polymorphic inline cache discussion beginning at line 10].

It would have been obvious to a person of ordinary skill in the art at the time

the invention was made to improve upon the system taught by Ramalingam by implementing the

improvements detailed above because it would have provided Ramalingam's system with the

enhanced capability of being *"more flexible than the inline cache as it* [i.e., polymorphic inline

cache] *is able to handle multiple receiver types"* [see instant specification, page 4].

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Applicant should review these references carefully before responding to this office

action.

Brodsky et al. (US 6243763 B1) teaches "Method for sending a message to a group and

the group broadcasts the message to its members or references within an object-oriented system."

Houston et al. (US 6178463 B1) teaches "Object-oriented data processing system with

transactional adapter."

Ramalingam et al. (US 6163880 A) teaches "Object model for Java."

Robinson (US 5774721 A) teaches "Method of communication between processors in a

distributed processing system having a host processor and at least one object oriented processor."

Saulpaugh et al. (US 5734903 A) teaches "System and method for object oriented

message filtering."

Burgess (US 5652888 A) teaches "System for interconnecting software components in an

object oriented programming environment using a separate editor object for each run-time object

instantiated for each selected component."

Foss et al. (US 5379426 A) teaches "Method and apparatus for object oriented

interprocess message switching."

Shackelford et al. (US 5265206 A) teaches "System and method for implementing a messenger and object manager in an object oriented programming environment."

Young et al. "Java message passing interface" 1997 IEEE, pp. 189-194.

Lei et al. "A software instrumentation technique for performance tuning of message-passing programs" 1995 IEEE, pp. 595-598.

McCandless et al. "Object oriented MPI (OOMPI): A class library for the message passing interface" 1996 IEEE, pp. 87-94.

Erradey et al. "Object-oriented design of message handling system protocol" 1995 IEEE, pp. 842-845.

Christopher et al. "Early experience with object-oriented message driven computing" 1990 IEEE, pp. 503-506.

Contact Information

21.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM - 6:00PM. The Examiner can also be reached on alternative Friday.

22.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM THOMSON can be reached at (571) 272-3718.

23.   The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

24.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:
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Van H. Nguyen